

REMARKS

Claims 1-10 are currently pending in the above-referenced Application. New rejections the claims have been entered. Claims 1-6 stand rejected under 35 U.S.C. § 103(a) as unpatentable over U.S. Patent No. 2,559,649 to Little, *et al.* ("Little") in view of U.S. Patent No. 4,724,026 to Nelson ("Nelson"). Claims 7-8 and 10 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Japanese publication JP 10-064574 ("Kazuhiko") in view of Nelson and Little. Finally, claim 9 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Kazuhiko, Nelson and Little in further view of an article by Temin (in Handbook of Adhesives) entitled *Pressure-Sensitive Adhesives for Tapes and Labels* ("Temin article").

The Applicant has carefully reviewed the March 27, 2003 Final Office Action. The Applicant is requesting entry of the foregoing requested amendments to place the claims in allowable condition. In addition to incorporating the features of claims 4 and 10 into claims 1 and 7, respectively, the amendments are intended to clarify that the apparatus and method of claimed are focussed on the novel use of hot press forming with the unique catalyst and film materials of to form fuel cell components, an application not suggested in the cited references or elsewhere in the art.

For the reasons set forth in the following remarks, the Applicant believes that upon entry of the foregoing amendments, claims 1-10 would be in allowable form. The Applicant thus respectfully requests reconsideration of the pending rejections and issuance of a Notice of Allowance for claims 1-3 and 5-9.

1. The Amended Claims Are Patentable Over the Cited References.

The Applicant respectfully traverses the rejection of claims 1-10 under §103(a) on the grounds that the cited references neither teach or suggest the present invention's hot press forming of fuel cell components.

A *prima facie* case of obviousness under § 103(a) requires (i) some suggestion or motivation in the references or in the knowledge generally available to modify or combine the references, (ii) there be a reasonable expectation that the combination will result in success, and (iii) the references much teach or suggest all the claim limitations. MPEP § 2143. The mere fact that references *can* be combined does not render the combination obvious "*unless the prior art also suggests the desirability of the combination.*" MPEP § 2143.01 (emphasis added). Moreover, merely asserting that the claimed invention is within

the knowledge of those of ordinary skill in the art “is not sufficient by itself to establish *prima facie* obviousness” where the individual references teach that individual elements of the invention were previously known in the art but there is “*no objective reason to combine the teachings of the references.*” *Id.* (emphasis added).

The Applicant respectfully submits that rather than identifying references that *themselves* suggest their combination to obtain the present invention, it appears the Examiner has merely identified various isolated features of the present invention, and then linked the references together with broad assertions as to obviousness to combine. However, nothing in any of the cited references teaches or suggests their combination to obtain an apparatus for manufacturing *membrane electrode assemblies used in a fuel cell*. Moreover, nothing in these references teaches or suggests anything regarding the likelihood of success of transferring fuel cell catalyst materials onto a membrane electrode film.

With respect to claims 1-6, the Office Action cites the Little reference as teaching heating and pressing of “a transferable coating” onto a “target substrate.” March 27, 2003 Office Action at 2. Close review, however, reveals that Little teaches only dissolving a thermoplastic material, spreading the liquid onto a belt and then evaporating the solvent, and heat pressing the dried plastic film onto a material such as a fabric to form a plastic-coated sheet. Little at 2:54-3:7. This reference fails to teach or suggest anything regarding the transfer and adhesion of *catalyst*-type materials (materials that are distinctly different from Little’s thermoplastics), or transfer of such materials to a solid polymer film suitable for use in a fuel cell. Moreover, there is nothing in this reference that suggests the use of Little’s apparatus with such dissimilar materials (fuel cell catalysts and polymer electrodes, as compared to plastic coatings and fabrics), let alone a suggestion that there would be a reasonable likelihood of success in applying the Little process to fuel cell component manufacture.

Thus, despite some superficial similarities between isolated components of the present invention and Little (such as the use of a heat press), Little offers no suggestion to one of ordinary skill in the art to use its apparatus to form membrane electrode assemblies with fuel cell catalyst materials and electrode films, and fails to suggest any likelihood that Little’s plastic coating process could be successfully applied to fuel cell membrane electrode manufacture.

Nor is this deficiency of Little cured by the other references. Nelson merely discloses an apparatus for transferring metal foil and xerographic images to paper. This reference

contains no suggestion that its *multi*-layer film transfer process is in any way suitable for use with heated roll pressing of fuel cell catalyst materials and electrode films.

As to the rejection of claims 7-8 and 10 over Kazuhiko in view of Nelson and Little (and claim 9 over these references in further view of Temin), the Examiner acknowledges that Kazuhiko teaches little more than roll pressing a catalyst and a film, but fails to provide an adequate justification for its combination with the other references. Moreover, the Applicant respectfully submits that by parsing the present invention into isolated component parts, the Examiner has failed to consider the invention as a whole.

The Examiner asserts that it would have been obvious to pre-cool the present invention's catalyst carrier, based on the Examiner's belief that Little discloses pre-cooling of the Little carrier and "transferable coating." First, there is nothing in either of these references that suggests that the present invention's catalyst and its carrier would behave in response to cooling in the same manner as Little's plastic coating material and its transfer belt. Second, Little in fact does not teach "cooling" its plastic coating material prior to its application to the target fabric sheet, *i.e.*, to enhance transfer to the fabric. Instead, when the entire paragraph including the cited portion is read in context, it is clear that Little is only teaching the use of air (nozzle 26) and/or heat (heater 24, heated drums 16, 18) to achieve a suitable temperature *to evaporate the solvents from the thermoplastic liquid to leave a dry film*. Little 5:48-66. The present invention, in contrast, cools the catalyst and its carrier prior to joining with the pre-heated solid polymer film in order to decrease a binding strength between the catalyst and its carrier so that the catalyst more readily bonds to the solid polymer film. Little teaches nothing to one of ordinary skill regarding cooling to enhance plastic separation from its transfer belt -- let alone teach anything regarding separating catalyst materials from their carrier.

It is also asserted that it would have been obvious to pre-heat the solid polymer film because Nelson teaches preheating to decrease the dwell time at the hot pressing rollers. However, this over-broad assertion fails to recognize that Nelson teaches pre-heating only to accelerate getting its xerographic images up to a suitable temperature that *permits* their transfer. In other words, this disclosure merely teaches an approach to decreasing processing time by getting the transfer up to at least a minimum temperature sooner. There is nothing in any of the cited references that suggests the present invention's combining pre-heating the electrode film and pre-cooling the catalyst and its carrier to *enhance* catalyst transfer and bonding to the solid polymer electrode film (*i.e.*, to decrease binding strength between the

catalyst and its carrier and to improve binding strength between the solid polymer film and the catalyst). Thus, by failing to consider the invention as a whole, the Examiner has failed to establish that it would have been obvious to combine the cited references to obtain the present invention.

For the foregoing reasons, the Applicant respectfully submits that, as amended, the presently pending claims recite an invention that would not have been obvious at the time of invention to one of skill in the art reviewing the cited references.

Conclusion

In view of the foregoing requested amendments and remarks, it is respectfully submitted that entry of the proposed amendments would place presently claims 1-10 in condition for allowance. The Applicant therefore earnestly solicits entry of the amendments and issuance of a Notice of Allowance for claims 1-3 and 5-9.

The Examiner is invited to contact the undersigned at (202) 220-4232 to discuss any matter concerning this application.

The Office is authorized to charge any underpayment or credit any overpayment to Kenyon & Kenyon Deposit Account No. 11-0600.

Respectfully submitted,



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